

## Gunnison Basin and Grand Valley Selenium Task Forces

- Established to address violations of water-quality standards.

### Example mission statement:

- “A group of private, local, state, & federal interests committed to finding ways to reduce selenium within the affected reaches while maintaining the economic viability and lifestyle of the lower Gunnison river basin.”

## Who Is Involved?

- **Local interests:**

- Water users, conservation districts, counties, cities, & towns, land owners, environmental interests

- **State agencies:**

- Water Quality Control Division
- Division of Water Resources
- Soil Conservation Board

- **Federal agencies**

- Natural Resources Conservation Service
- NIWQP (Bureau of Reclamation, U.S. Geological Survey, U.S. Fish & Wildlife)

## Task Force Activities

- Brings together affected stakeholders
- Discusses/researches issues & sets priorities
- Identifies preferred solutions
- Implements demonstration projects
- Obtains project (grant) funding
- Promotes & supports activities of others that reduce selenium (**water conservation**)

## What Is Being Done?

- Piping and lining irrigation delivery systems
  - Congressional write-in to supplement Salinity Program funding
- BMP development for non-agricultural sources
  - Design & deliver education programs
- Evaluation of technologies to address agricultural sources.
  - Bioreactors, pond lining, sprinkler irrigation
- State Water Quality Control Division developing TMDLs
- Land use study
  - Predict effects of ag/urban conversion and development of previously unirrigated lands on salinity and selenium loading

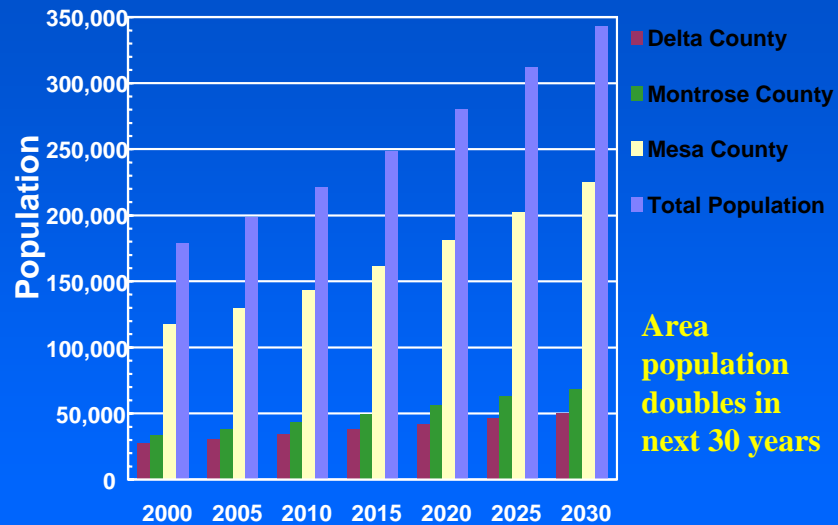
## Attaining the Selenium Standard on the Gunnison and Colorado Rivers

- NIWQP projected **5,500 pounds/yr** (28% load reduction) must be eliminated to reach 4.6 ppb (85<sup>th</sup> percentile) Gunnison River and **3,230 pounds/yr** (10% load reduction).
- Coordinating **Congressional write-in** for UVWUA with Federal salinity-control programs to accomplish much of the reduction.
- Estimated reductions from projects under construction:
  - Piping 202 miles of irrigation laterals may eliminate up to 4,100 lbs./Yr. (Construction ~ 6% complete).**
  - EQIP on-farm improvements = est. 1,500 lbs./Yr.**
- Assuming funding continues to be available, estimated completion in **15-20** years.
- Big question is “how will changing land use affect loading?”

## How will Urbanization Effect Water Use and Water Quality?



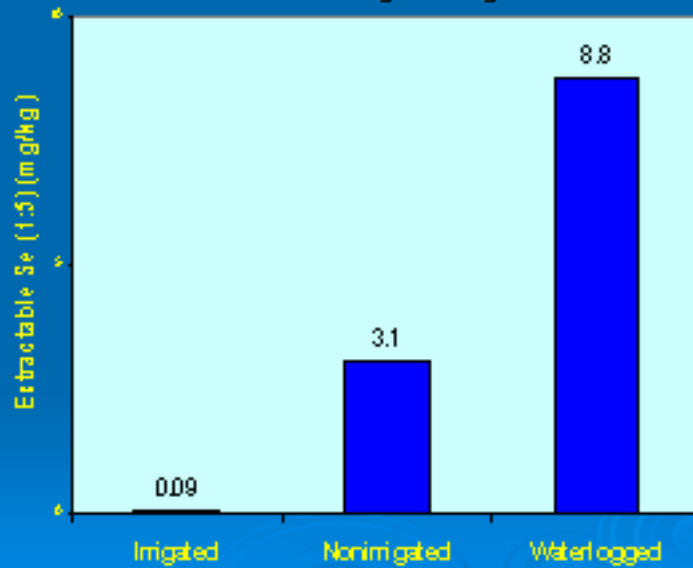
## Estimated Population Growth in Western Colorado: 2000-2030



## MANCOS SHALE

Most development is occurring on the Mancos shale

## Extractable Se (1:5) for 44 sites



Dr. Karl Bonke



## Effects of Recent Development: Devils thumb Golf Course near Delta, Colorado

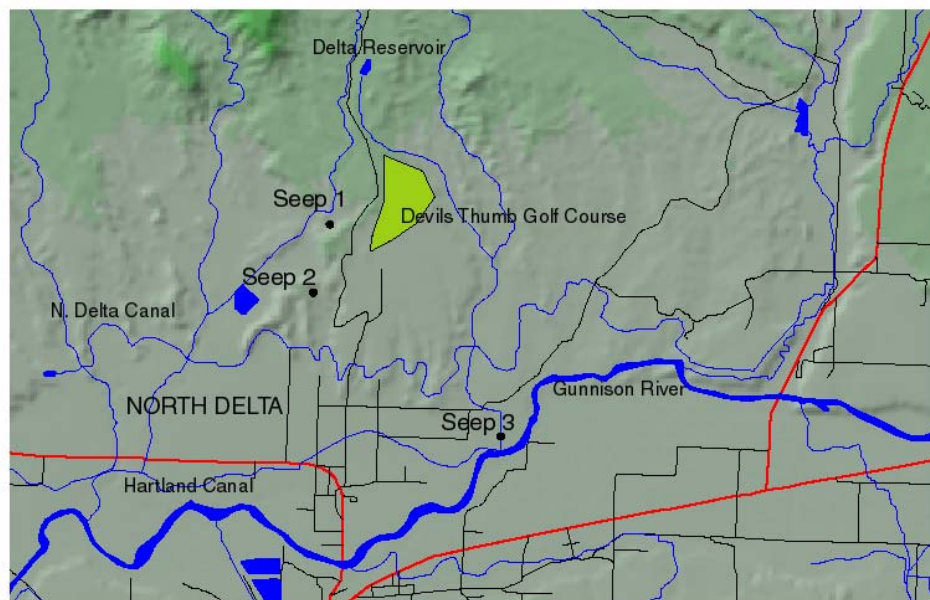


### Sources of Deep Percolation and resulting salinity and selenium loading

Delivery system

Ponds

Sprinkler irrigation



## Preliminary Results

- **Selenium loads:**
  - Seep1: 0.03 lbs/day
  - Seep2: 1.6 lbs/day
- **Compared to:**  
**Remediation**  
**Effected in**  
**Montrose Arroyo:**  
**0.6 lbs/day**

Seep area #1 down gradient  
from golf course



## Where Can You Find More Information?

- Gunnison River Basin Selenium Task Force:  
<http://www.seleniumtaskforce.org/>
- National Irrigation Water Quality Program:  
<http://www.usbr.gov/niwqp/>
- Montrose Arroyo Demo Project:  
<http://water.usgs.gov/pubs/wri/wri01-4204/>
- Gunnison River Characterization report:  
<http://water.usgs.gov/pubs/wri/wri02-4151/>

## Who Can You Contact For More Information?

- **U.S. Geological Survey Activities:**

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Freemont River Valley near Capitol Reef National Park, Utah

***Thank You***